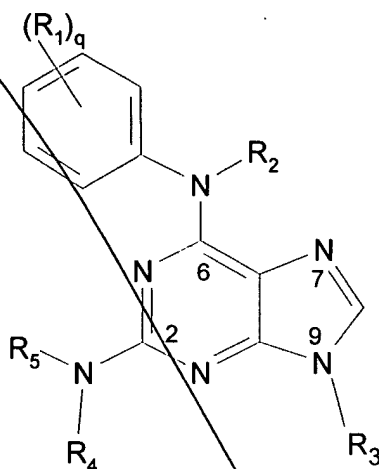


IN THE CLAIMS

Cancel claims 17 and 22.

Amend claims 1-4 as follows. A marked-up version of the amended claims is attached as an appendix to this paper.

1. (twice amended) A compound of the formula I



wherein

q is 1-5,

R₁ is

α) -S(=O)_k-NR₆R₇, in which

k is 1 or 2,

wherein under the proviso that R₆ and R₇ cannot be simultaneously hydrogen

α1) R₆, R₇ can be identical or different from one another and represent an aliphatic, carbocyclic, heterocyclic, carbocyclic-aliphatic or heterocyclic-aliphatic radical; hydrogen or lower aliphatic acyl; or

α2) R₆ and R₇ together are an alkylene or alkenylene radical having from 3 up to and including 9 C atoms, in which 1-3 C atoms can be replaced by oxygen, sulfur or nitrogen, wherein said alkylene or alkenylene radical can be unsubstituted or substituted by halogen, hydroxy, lower alkoxy, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl or a radical -(CH₂)_y-R₁₀, in which y is 0 to 3, preferably 0 to 2, and R₁₀ is hydrogen or phenyl, which is unsubstituted or substituted by halogen,

halogen lower alkyl, lower alkoxy, hydroxy, lower alkoxy-carbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy or cyano, or

β) N-(aryl lower alkyl)carbamoyl, or

γ) a radical of the formula $\text{-NH-S(=O)}_i\text{-R}_8$, in which

i is 1 or 2,

R_8 is an aliphatic, carbocyclic or heterocyclic radical; or

δ) a radical of the formula -NH-C(=O)-R_9 , in which

R_9 is alkoxy, aryloxy, alkenyl, alkynyl, heterocyclyl alkynyl, aryl alkynyl, heteroaryl alkynyl, alkynyloxy or aryl alkynyloxy, which in each case is unsubstituted or substituted, the substituents being selected from the group consisting of halogen, hydroxy, phenyl, lower alkyl, lower alkoxy, lower alkoxy-carbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy, tri-lower alkyl silyl, cyano or lower alkyl which is substituted by halogen, wherein such an unsubstituted or substituted R_9 radical has not more than 20 C atoms;

where, if more than one radical R_1 is present in the molecule, these can be identical or different from one another,

R_2 is hydrogen, carbamoyl or N-lower alkyl-carbamoyl,

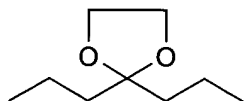
R_3 is lower alkyl, which is unsubstituted or substituted by hydroxy, lower alkoxy, amino, lower alkylamino or N,N-di-lower alkylamino and

a) R_4 is hydrogen, amino, phenylamino, lower alkylamino, hydroxyl, phenoxy, lower alkoxy, acyl having 1-30 C atoms, a carbocyclic or carbocyclic-aliphatic radical having not more than 29 C atoms, a heterocyclic or heterocyclic-aliphatic radical having not more than 20 C atoms and not more than 9 heteroatoms, or a substituted hydrocarbon radical having not more than 29 C atoms wherein the substituents are selected from halogen, amino, lower alkylamino, ω-amino-lower alkylamino, lower alkanoylamino, benzoylamino, hydroxylamino, hydroxylimino, lower alkoxy-amino, phenyloxyamino, amino-cyclohexyl-amino-, amino-phenyl-amino-, carbamoyl-amino, (N-lower alkyl-carbamoyl)-amino, (N-[ω-amino-lower alkyl]-carbamoyl)-amino, (N-phenyl-carbamoyl)-amino, lower alkylthio, thiocarbamoyl, thioureido, N-lower alkyl-thioureido, N-phenyl-thioureido, guanidino, N-lower alkyl-guanidino, carboxyl, lower alkoxy-carbonyl, phenyloxycarbonyl, benzyloxycarbonyl, hydroxylaminocarbonyl, carbamoyl, amidino, cyano, , lower alkoxy, phenoxy, aminocarbonyl-oxy, oxo, aminosulfonyl, lower alkylsulfonyl-amino, glycyllamino, alanyl-amino, phenylalanyl-amino, prolyl-amino, valyl-amino, leucyl-amino, isoleucyl-amino, seryl-amino, threonyl-amino, cysteinyl-amino, methionyl-amino, tyrosyl-amino,

tryptophanyl-amino, arginyl-amino, histidyl-amino, lysyl-amino, glutamyl-amino, glutaminyl-amino, asparagyl-amino, asparaginy-l-amino and phenylglycyl-amino; and

R₅, independently of R₄, is as defined above for R₄, with the exception of hydrogen, or

b) R₄ and R₅ together are 1,2-ethylene, propane-1,3-diyl, butane-1,4-diyl, pentane-1,5-diyl, 3-(3-amino-propionyl)-3-aza-pentane-1,5-diyl, 2-amino-butane-1,4-diyl, 1-aminomethyl-butane-1,4-diyl, 1-hydroxymethyl-butane-1,4-diyl, 3-hydroxy-pentane-1,5-diyl, 1-hydroxy-hexane-1,5-diyl, 3-(2-amino-ethyl)-pentane-1,5-diyl, 3-aza-pentane-1,5-diyl (-CH₂-CH₂-NH-CH₂-CH₂-), 3-aza-2,4-dimethyl-pentane-1,5-diyl (-CH₂-CH[CH₃]-NH-CH[CH₃]-CH₂-), 3-amino-3-aza-pentane-1,5-diyl (-CH₂-CH₂-N[NH₂]-CH₂-CH₂-), 1-aza-pentane-1,5-diyl, 1-aza-1-toluylaminocarbonyl-pentane-1,5-diyl, 1-aza-1-(methylamino-thiocarbonyl)-pentane-1,5-diyl, 1-aza-1-(tert-butylamino-carbonyl)-pentane-1,5-diyl, 1-aza-1-(cyclohexylamino-carbonyl)-pentane-1,5-diyl, 3-aza-1-hydroxy-heptane-3,7-diyl, 3-aza-1-cyano-heptane-3,7-diyl, 1-amino-3-aza-heptane-3,7-diyl, 3-(2-amino-ethyl)-3-aza-pentane-1,5-diyl (-CH₂-CH₂-N[-CH₂-CH₂-NH₂]-CH₂-CH₂-), 1-carbamoyl-butane-1,4-diyl, 2-formylamino-pentane-1,4-diyl, 2-aza-butadiene-1,4-diyl (-CH=CH-N=CH-), 2-aza-3-hydroxymethyl-butadiene-1,4-diyl (-CH=C[CH₂OH]-N=CH-) or a radical of the formula



in which the two terminal bonds of the alkylene chain are free valencies, or a salt thereof.

2. (twice amended) A compound of the formula I according to claim 1, wherein

q is 1-5,

R₁ is

α) -S(=O)_k-NR₆R₇, in which

k is 1 or 2,

wherein under the proviso that R₆ and R₇ cannot be simultaneously hydrogen

α1) R₆, R₇ can be identical or different from one another and represent an aliphatic, carbocyclic, heterocyclic, carbocyclic-aliphatic or heterocyclic-aliphatic radical; hydrogen or lower aliphatic acyl; or

α2) R₆ and R₇ together are an alkylene or alkenylene radical having from 3 up to and including 9 C atoms, in which 1-3 C atoms can be replaced by oxygen, sulfur or nitrogen, wherein said alkylene or alkenylene radical can be unsubstituted or substituted by halogen, hydroxy, lower alkoxy, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl or a radical -(CH₂)_y-R₁₀, in which y is 0 to 3, preferably

0 to 2, and R_{10} is hydrogen or phenyl, which is unsubstituted or substituted by halogen, halogen lower alkyl, lower alkoxy, hydroxy, lower alkoxycarbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy or cyano, or

β) N-(aryl lower alkyl)carbamoyl, or

γ) a radical of the formula $-NH-S(=O)_i-R_8$, in which

i is 1 or 2,

R_8 is an aliphatic, carbocyclic or heterocyclic radical; or

δ) a radical of the formula $-NH-C(=O)-R_9$, in which

R_9 is alkoxy, aryloxy, alkenyl, alkynyl, aryl alkynyl, alkynyloxy or aryl alkynyloxy, which in each case is unsubstituted or substituted, the substituents being selected from the group consisting of halogen, hydroxy, phenyl, lower alkyl, lower alkoxy, lower alkoxycarbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy, tri-lower alkyl silyl, cyano or lower alkyl which is substituted by halogen, wherein such an unsubstituted or substituted R_9 radical has not more than 20 C atoms;

where, if more than one radical R_1 is present in the molecule, these can be identical or different from one another,

R_2 is hydrogen, carbamoyl or N-lower alkyl-carbamoyl,

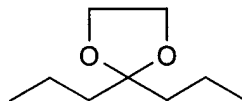
R_3 is lower alkyl, which is unsubstituted or substituted by hydroxy, lower alkoxy, amino, lower alkylamino or N,N-di-lower alkylamino and

a) R_4 is hydrogen, amino, phenylamino, lower alkylamino, hydroxyl, phenoxy, lower alkoxy, acyl having 1-30 C atoms, a carbocyclic or carbocyclic-aliphatic radical having not more than 29 C atoms, a heterocyclic or heterocyclic-aliphatic radical having not more than 20 C atoms and not more than 9 heteroatoms, or a substituted hydrocarbon radical having not more than 29 C atoms wherein the substituents are selected from halogen, amino, lower alkylamino, ω-amino-lower alkylamino, lower alkanoylamino, benzoylamino, hydroxylamino, hydroxylimino, lower alkoxy-amino, phenyloxyamino, amino-cyclohexyl-amino-, amino-phenyl-amino-, carbamoyl-amino, (N-lower alkyl-carbamoyl)-amino, (N-[ω-amino-lower alkyl]-carbamoyl)-amino, (N-phenyl-carbamoyl)-amino, lower alkylthio, thiocarbamoyl, thioureido, N-lower alkyl-thioureido, N-phenyl-thioureido, guanidino, N-lower alkyl-guanidino, carboxyl, lower alkoxycarbonyl, phenyloxycarbonyl, benzyloxycarbonyl, hydroxylaminocarbonyl, carbamoyl, amidino, cyano, lower alkoxy, phenyloxy, aminocarbonyl-oxy, oxo, aminosulfonyl, lower alkylsulfonyl-amino, glycylamino, alanyl-amino, phenylalanyl-amino, prolyl-amino, valyl-amino, leucyl-amino, isoleucyl-amino, seryl-amino, threonyl-amino, cysteinyl-amino, methionyl-amino, tyrosyl-amino,

tryptophanyl-amino, arginyl-amino, histidyl-amino, lysyl-amino, glutamyl-amino, glutaminyl-amino, asparagyl-amino, asparaginy-l-amino and phenylglycyl-amino; and

R₅, independently of R₄, is as defined above for R₄, with the exception of hydrogen, or

- b) R₄ and R₅ together are 1,2-ethylene, propane-1,3-diyl, butane-1,4-diyl, pentane-1,5-diyl, 3-(3-amino-propionyl)-3-aza-pentane-1,5-diyl, 2-amino-butane-1,4-diyl, 1-aminomethyl-butane-1,4-diyl, 1-hydroxymethyl-butane-1,4-diyl, 3-hydroxy-pentane-1,5-diyl, 1-hydroxy-hexane-1,5-diyl, 3-(2-amino-ethyl)-pentane-1,5-diyl, 3-aza-pentane-1,5-diyl (-CH₂-CH₂-NH-CH₂-CH₂-), 3-aza-2,4-dimethyl-pentane-1,5-diyl (-CH₂-CH[CH₃]-NH-CH[CH₃]-CH₂-), 3-amino-3-aza-pentane-1,5-diyl (-CH₂-CH₂-N[NH₂]-CH₂-CH₂-), 1-aza-pentane-1,5-diyl, 1-aza-1-toluylaminocarbonyl-pentane-1,5-diyl, 1-aza-1-(methylamino-thiocarbonyl)-pentane-1,5-diyl, 1-aza-1-(tert-butylamino-carbonyl)-pentane-1,5-diyl, 1-aza-1-(cyclohexylamino-carbonyl)-pentane-1,5-diyl, 3-aza-1-hydroxy-heptane-3,7-diyl, 3-aza-1-cyano-heptane-3,7-diyl, 1-amino-3-aza-heptane-3,7-diyl, 3-(2-amino-ethyl)-3-aza-pentane-1,5-diyl (-CH₂-CH₂-N[-CH₂-CH₂-NH₂]-CH₂-CH₂-), 1-carbamoyl-butane-1,4-diyl, 2-formylamino-pentane-1,4-diyl, 2-aza-butadiene-1,4-diyl (-CH=CH-N=CH-), 2-aza-3-hydroxymethyl-butadiene-1,4-diyl (-CH=C[CH₂OH]-N=CH-) or a radical of the formula



in which the two terminal bonds of the alkylene chain are free valencies, or a salt thereof.

3. (twice amended) A compound of the formula I according to claim 1, wherein q is 1-5,

R₁ is

α) -S(=O)_k-NR₆R₇, in which

k is 1 or 2,

wherein under the proviso that R₆ and R₇ cannot be simultaneously hydrogen

α1) R₆, R₇ can be identical or different from one another and represent an aliphatic, carbocyclic, heterocyclic, carbocyclic-aliphatic or heterocyclic-aliphatic radical; hydrogen or lower aliphatic acyl; or

α2) R₆ and R₇ together are an alkylene or alkenylene radical having from 3 up to and including 9 C atoms, in which 1-3 C atoms can be replaced by oxygen, sulfur or nitrogen, wherein said alkylene or alkenylene radical can be unsubstituted or substituted by halogen, hydroxy, lower alkoxy, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl or a radical -(CH₂)_y-R₁₀, in which y is 0 to 3, preferably 0 to 2, and

R_{10} is hydrogen or phenyl, which is unsubstituted or substituted by halogen, halogen lower alkyl, lower alkoxy, hydroxy, lower alkoxycarbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy or cyano;

β) N-(aryl lower alkyl)carbamoyl, or

γ) a radical of the formula $-NH-S(=O)_i-R_8$, in which

i is 1 or 2,

R_8 is an aliphatic, carbocyclic or heterocyclic radical; or

δ) a radical of the formula $-NH-C(=O)-R_9$, in which

R_9 is alkoxy, aryloxy, alkenyl, alkynyl, heterocyclyl alkynyl, aryl alkynyl, heteroaryl alkynyl, alkynyloxy or aryl alkynyloxy, which in each case is unsubstituted or substituted, the substituents being selected from the group consisting of halogen, hydroxy, phenyl, lower alkyl, lower alkoxy, lower alkoxycarbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy, tri-lower alkyl silyl, cyano or lower alkyl which is substituted by halogen, wherein such an unsubstituted or substituted R_9 radical has not more than 20 C atoms;

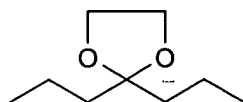
where, if more than one radical R_1 is present in the molecule, these can be identical or different from one another,

a) R_4 is, in cases where R_1 is selected from α, hydrogen, amino, phenylamino, lower alkylamino, hydroxyl, phenoxy, lower alkoxy, acyl having 1-30 C atoms, a carbocyclic or carbocyclic-aliphatic radical having not more than 29 C atoms, a heterocyclic or heterocyclic-aliphatic radical having not more than 20 C atoms and not more than 9 heteroatoms, or a substituted hydrocarbon radical having not more than 29 C atoms wherein the substituents are selected from halogen, amino, lower alkylamino, ω-amino-lower alkylamino, lower alkanoylamino, benzoylamino, hydroxylamino, hydroxylimino, lower alkoxy-amino, phenyloxyamino, aminocyclohexyl-amino-, amino-phenyl-amino-, carbamoyl-amino, (N-lower alkyl-carbamoyl)-amino, (N-[ω-amino-lower alkyl]-carbamoyl)-amino, (N-phenyl-carbamoyl)-amino, lower alkylthio, thiocarbamoyl, thioureido, N-lower alkyl-thioureido, N-phenyl-thioureido, guanidino, N-lower alkyl-guanidino, carboxyl, lower alkoxycarbonyl, phenyloxycarbonyl, benzyloxycarbonyl, hydroxylaminocarbonyl, carbamoyl, amidino, cyano, lower alkoxy, phenyloxy, aminocarbonyloxy, oxo, aminosulfonyl, lower alkylsulfonyl-amino, glycylamino, alanylamino, phenylalanylamino, prolylamino, valylamino, leucylamino, isoleucylamino, serylamino, threonylamino, cysteinylamino, methionylamino, tyrosylamino, tryptophanylamino, arginylamino, histidylamino, lysylamino, glutamylamino, glutaminylamino, asparagylamino, asparaginylamino and phenylglycylamino; and

R_4 is, in cases where R_1 is selected from β , γ and δ , hydrogen, amino, phenylamino, lower alkylamino, hydroxyl, phenoxy, lower alkoxy, acyl having 1-30 C atoms, a cycloaliphatic or carbocyclic-aliphatic radical having not more than 29 C atoms, a heterocyclic or heterocyclic-aliphatic radical having not more than 20 C atoms and not more than 9 heteroatoms, or a substituted hydrocarbon radical having not more than 29 C atoms wherein the substituents are selected from halogen, amino, lower alkylamino, ω -amino-lower alkylamino, lower alkanoylamino, benzoylamino, hydroxylamino, hydroxylimino, lower alkoxy-amino, phenyloxyamino, amino-cyclohexyl-amino-, amino-phenyl-amino-, carbamoyl-amino, (N-lower alkyl-carbamoyl)-amino, (N-[ω -amino-lower alkyl]-carbamoyl)-amino, (N-phenyl-carbamoyl)-amino, lower alkylthio, thiocarbamoyl, thioureido, N-lower alkyl-thioureido, N-phenyl-thioureido, guanidino, N-lower alkyl-guanidino, carboxyl, lower alkoxycarbonyl, phenyloxycarbonyl, benzyloxycarbonyl, hydroxylaminocarbonyl, carbamoyl, amidino, cyano, lower alkoxy, phenyloxy, aminocarbonyl-oxy, oxo, aminosulfonyl, lower alkylsulfonyl-amino, glycyllamino, alanyl-amino, phenylalanyl-amino, prolyl-amino, valyl-amino, leucyl-amino, isoleucyl-amino, seryl-amino, threonyl-amino, cysteinyl-amino, methionyl-amino, tyrosyl-amino, tryptophanyl-amino, arginyl-amino, histidyl-amino, lysyl-amino, glutamyl-amino, glutaminyl-amino, asparagyl-amino, asparaginyl-amino and phenylglycyl-amino; and

R_5 independently of R_4 , is as defined above for R_4 , with the exception of hydrogen, or

- b) R_4 and R_5 together are 1,2-ethylene, propane-1,3-diyl, butane-1,4-diyl, pentane-1,5-diyl, 3-(3-amino-propionyl)-3-aza-pentane-1,5-diyl, 2-amino-butane-1,4-diyl, 1-aminomethyl-butane-1,4-diyl, 1-hydroxymethyl-butane-1,4-diyl, 3-hydroxy-pentane-1,5-diyl, 1-hydroxy-hexane-1,5-diyl, 3-(2-amino-ethyl)-pentane-1,5-diyl, 3-aza-pentane-1,5-diyl ($-\text{CH}_2-\text{CH}_2-\text{NH}-\text{CH}_2-\text{CH}_2-$), 3-aza-2,4-dimethyl-pentane-1,5-diyl ($-\text{CH}_2-\text{CH}[\text{CH}_3]-\text{NH}-\text{CH}[\text{CH}_3]-\text{CH}_2-$), 3-amino-3-aza-pentane-1,5-diyl ($-\text{CH}_2-\text{CH}_2-\text{N}[\text{NH}_2]-\text{CH}_2-\text{CH}_2-$), 1-aza-pentane-1,5-diyl, 1-aza-1-toluylaminocarbonyl-pentane-1,5-diyl, 1-aza-1-(methylamino-thiocarbonyl)-pentane-1,5-diyl, 1-aza-1-(tert-butylamino-carbonyl)-pentane-1,5-diyl, 1-aza-1-(cyclohexylamino-carbonyl)-pentane-1,5-diyl, 3-aza-1-hydroxy-heptane-3,7-diyl, 3-aza-1-cyano-heptane-3,7-diyl, 1-amino-3-aza-heptane-3,7-diyl, 3-(2-amino-ethyl)-3-aza-pentane-1,5-diyl ($-\text{CH}_2-\text{CH}_2-\text{N}[-\text{CH}_2-\text{CH}_2-\text{NH}_2]-\text{CH}_2-\text{CH}_2-$), 1-carbamoyl-butane-1,4-diyl, 2-formylamino-pentane-1,4-diyl, 2-aza-butadiene-1,4-diyl ($-\text{CH}=\text{CH}-\text{N}=\text{CH}-$), 2-aza-3-hydroxymethyl-butadiene-1,4-diyl ($-\text{CH}=\text{C}[\text{CH}_2\text{OH}]-\text{N}=\text{CH}-$) or a radical of the formula



in which the two terminal bonds of the alkylene chain are free valencies; or

R_2 is hydrogen, carbamoyl or N-lower alkyl-carbamoyl, and

Q1 R₃ is lower alkyl, which is unsubstituted or substituted by hydroxy, lower alkoxy, amino, lower alkylamino or N,N-di-lower alkylamino, or a salt thereof.

4. (once amended) A compound of the formula I according to claim 1, wherein

q is 1-3,

R₁ is

α) -S(=O)_k-NR₆R₇, in which

k is 2,

wherein under the proviso that R₆ and R₇ cannot be simultaneously hydrogen

α1) R₆, R₇ can be identical or different from one another and represent an aliphatic, carbocyclic, heterocyclic, carbocyclic-aliphatic or heterocyclic-aliphatic radical; or hydrogen; or

α2) R₆ and R₇ together are an alkylene or alkenylene radical having from 3 up to and including 9 C atoms, in which 1-3 C atoms can be replaced by oxygen, sulfur or nitrogen, wherein said alkylene or alkenylene radical can be unsubstituted or substituted having in each case including the substituents not more than 20 C atoms, the substituents being selected from halogen, hydroxy, lower alkoxy, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl or a radical -(CH₂)_y-R₁₀, in which y is 0 to 3, preferably 0 to 2, and R₁₀ is hydrogen or phenyl, which is unsubstituted or substituted by halogen, halogen lower alkyl, lower alkoxy, hydroxy, lower alkoxycarbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy or cyano, or

β) N-(aryl lower alkyl)carbamoyl, or

γ) a radical of the formula -NH-S(=O)_i-R₈, in which

i is 2, and

R₈ is an aliphatic, carbocyclic or heterocyclic radical; or

δ) a radical of the formula -NH-C(=O)-R₉, in which

R₉ is alkoxy, aryloxy, alkynyl, heterocyclyl alkynyl, aryl alkynyl, heteroaryl alkynyl, alkynyloxy or aryl alkynyloxy, which in each case is unsubstituted or substituted, the substituents being selected from the group consisting of halogen, hydroxy, phenyl, lower alkyl, lower alkoxy, lower alkoxycarbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy, tri-lower alkyl silyl, cyano or lower alkyl which is substituted by halogen, wherein such an unsubstituted or substituted R₉ radical has not more than 20 C atoms;

where, if more than one radical R_1 is present in the molecule, these can be identical or different from one another,

R_2 is hydrogen,

R_3 is lower alkyl,

R_4 is

hydrogen, amino, phenylamino, lower alkylamino, hydroxyl, phenoxy or lower alkoxy;
an acyl radical of the part formula $Z-C(=W)-$, in which W is oxygen, sulfur or imino and Z is hydrogen, hydrocarbyl R^0 , hydrocarbyloxy R^0-O- or an amino group of the formula $R_{11}(R_{12})N-$, in which R^0 in each case is C_1-C_4 alkyl, hydroxy- C_2-C_{14} alkyl, cyano- C_1-C_4 alkyl, carboxy- C_1-C_4 alkyl, C_1-C_4 alkoxycarbonyl- C_1-C_4 alkyl, C_3-C_7 alkenyl or phenyl and R_{11} and R_{12} independently of one another are each hydrogen, lower alkyl, ω -amino-lower alkyl, lower alkylsulfonyl or phenyl;
a substituted hydrocarbon radical having not more than 29 C atoms wherein the substituents are selected from halogen, amino, lower alkylamino, ω -amino-lower alkylamino, lower alkanoylamino, benzoylamino, hydroxylamino, hydroxylimino, lower alkoxy-amino, phenyloxyamino, amino-cyclohexyl-amino-, amino-phenyl-amino-, carbamoyl-amino, (N-lower alkyl-carbamoyl)-amino, (N-[ω -amino-lower alkyl]-carbamoyl)-amino, (N-phenyl-carbamoyl)-amino, lower alkylthio, thiocarbamoyl, thioureido, N-lower alkyl-thioureido, N-phenyl-thioureido, guanidino, N-lower alkyl-guanidino, carboxyl, lower alkoxycarbonyl, phenyloxycarbonyl, benzyloxycarbonyl, hydroxylaminocarbonyl, carbamoyl, amidino, cyano, lower alkoxy, phenyloxy, aminocarbonyl-oxy, oxo, aminosulfonyl, lower alkylsulfonyl-amino, glycylamino, alanyl-amino, phenylalanyl-amino, prolyl-amino, valyl-amino, leucyl-amino, isoleucyl-amino, seryl-amino, threonyl-amino, cysteinyl-amino, methionyl-amino, tyrosyl-amino, tryptophanyl-amino, arginyl-amino, histidyl-amino, lysyl-amino, glutamyl-amino, glutaminyl-amino, asparagyl-amino, asparaginyl-amino and phenylglycyl-amino;
benzyl, 2-phenyl-ethyl, 3-aminomethyl-benzyl, (1-hydroxy-cyclohex-1-yl)-methyl, (2-amino-3,5,5-trimethyl-cyclopentyl)-methyl, 1-[N-(1-carboxy-2-phenyl-ethyl)-carbamoyl]-2-carbamoyl-eth-1-yl, 1-carbamoyl-1-phenyl-methyl, 1-carbamoyl-2-(4-hydroxy-phenyl)-eth-1-yl, 1-carbamoyl-2-phenyl-eth-1-yl, 2-amino-1,2-diphenyl-eth-1-yl, 2-benzyloxycarbonyl-1-carbamoyl-eth-1-yl, 3-benzyloxycarbonyl-1-carbamoyl-prop-1-yl, 1-adamantyl-2-amino-prop-1-yl, 1-adamantyl-1-amino-prop-2-yl, (2-furyl)-methyl, (2-tetrahydrofuryl)-methyl, 2-pyrid-2-yl-ethyl, 2-piperidino-ethyl, 2-(morpholin-4-yl)-ethyl, 2-(3-indolyl)-ethyl, 2-(4-imidazolyl)-ethyl, 1-carbamoyl-2-(β -indolyl)-eth-1-yl, 1-carbamoyl-2-imidazol-4-yl-eth-1-yl, 1-carbamoyl-2-indol-3-yl-eth-1-yl, 3-aminomethyl-oxetan-3-yl-methyl, 1-(acetoxymino)-1-(4-amino-2-oxa-1,3-diazol-5-yl)-methyl,

C₄-C₈cycloalkyl, which is substituted by carboxy, thiocarboxy, lower alkoxy, carbonyl, hydrazinocarbonyl, hydroxaminocarbonyl, amidino, sulfamoyl, sulfanyl, halogen, cyano, formyl, amino, hydroxy, lower alkoxy, lower aliphatic acyl, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, aminocarbonyloxy or ureido; 2-aminomethyl-3,3,5-trimethyl-cyclopent-1-yl, 3-amino-adamantan-1-yl, 2-carbamoyl-bicyclo[2.2.1]hept-5-en-3-yl, 9-amino-spiro[4.4]non-1-yl, 5-amino-2-oxa-1,3-diazol-4-yl, 4-amino-thien-3-yl, 3-carbamoyl-5-(3-[2,4-dichloro-phenyl]-1-oxo-prop-2-en-1-yl)-1,2-thiazol-4-yl, 3-carbamoyl-5-(3-[4-trifluoro-phenyl]-1-oxo-prop-2-en-1-yl)-1,2-thiazol-4-yl, 4-amino-2-(4-carboxy-butyl)-tetrahydrothiophen-3-yl or 3-amino-2-(4-carboxy-butyl)-tetrahydrothiophen-4-yl, and

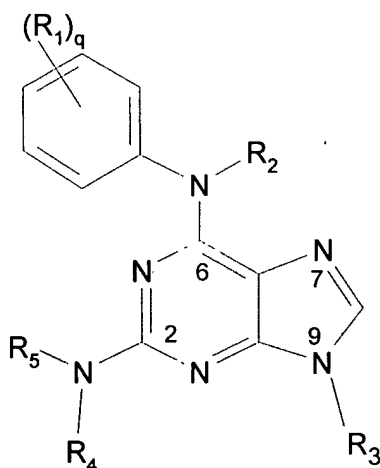
R₅, independently of R₄, is as defined above for R₄, with the exception of hydrogen, or

R₄ and R₅ together are 1,2-ethylene, propane-1,3-diyl, butane-1,4-diyl, pentane-1,5-diyl, 3-(3-amino-propionyl)-3-aza-pentane-1,5-diyl, 1-aminomethyl-butane-1,4-diyl, 1-hydroxy-methyl-butane-1,4-diyl, 3-(2-amino-ethyl)-pentane-1,5-diyl, 3-aza-pentane-1,5-diyl or 3-(2-amino-ethyl)-3-aza-pentane-1,5-diyl,

or a salt thereof.

Add new claims 23-24 as follows:

23. (newly added) A compound of the formula I



(I)

wherein

q is 1-5,

R₁ is

α) -S(=O)_k-NR₆R₇, in which

k is 1 or 2,

wherein under the proviso that R_6 and R_7 cannot be simultaneously hydrogen

$\alpha 1$) R_6 , R_7 can be identical or different from one another and represent an aliphatic, carbocyclic, heterocyclic, carbocyclic-aliphatic or heterocyclic-aliphatic radical; hydrogen or lower aliphatic acyl; or

$\alpha 2$) R_6 and R_7 together are an alkylene or alkenylene radical having from 3 up to and including 9 C atoms, in which 1-3 C atoms can be replaced by oxygen, sulfur or nitrogen, wherein said alkylene or alkenylene radical can be unsubstituted or substituted by halogen, hydroxy, lower alkoxy, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl or a radical $-(CH_2)_y-R_{10}$, in which y is 0 to 3, preferably 0 to 2, and R_{10} is hydrogen or phenyl, which is unsubstituted or substituted by halogen, halogen lower alkyl, lower alkoxy, hydroxy, lower alkoxy-carbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy or cyano, or

β) N-(aryl lower alkyl)carbamoyl, or

γ) a radical of the formula $-NH-S(=O)_i-R_8$, in which

i is 1 or 2,

R_8 is an aliphatic, carbocyclic or heterocyclic radical; or

δ) a radical of the formula $-NH-C(=O)-R_9$, in which

R_9 is alkoxy, aryloxy, alkenyl, alkynyl, heterocyclyl alkynyl, aryl alkynyl, heteroaryl alkynyl, alkynyloxy or aryl alkynyloxy, which in each case is unsubstituted or substituted, the substituents being selected from the group consisting of halogen, hydroxy, lower alkyl, lower alkoxy, lower alkoxy-carbonyl, amino, lower alkylamino, di-lower alkylamino, carbamoyl, lower alkylcarbamoyl, carboxyl, methylenedioxy, tri-lower alkyl silyl, cyano or lower alkyl which is substituted by halogen, wherein such an unsubstituted or substituted R_9 radical has not more than 20 C atoms;

where, if more than one radical R_1 is present in the molecule, these can be identical or different from one another,

R_2 is hydrogen, carbamoyl or N-lower alkyl-carbamoyl,

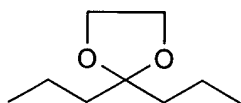
R_3 is lower alkyl, which is unsubstituted or substituted by hydroxy, lower alkoxy, amino, lower alkylamino or N,N-di-lower alkylamino and

a) R_4 is hydrogen, amino, phenylamino, lower alkylamino, hydroxyl, phenoxy, lower alkoxy, acyl having 1-30 C atoms, a carbocyclic or carbocyclic-aliphatic radical having not more than 29 C atoms, a heterocyclic or heterocyclic-aliphatic radical having not more than 20 C atoms and not more than 9 heteroatoms, or a substituted hydrocarbon radical having not more than 29 C

atoms wherein the substituents are selected from halogen, amino, lower alkylamino, ω -amino-lower alkylamino, lower alkanoylamino, benzoylamino, hydroxylamino, hydroxylimino, lower alkoxy-amino, phenyloxyamino, amino-cyclohexyl-amino-, amino-phenyl-amino-, carbamoyl-amino, (N-lower alkyl-carbamoyl)-amino, (N-[ω -amino-lower alkyl]-carbamoyl)-amino, (N-phenyl-carbamoyl)-amino, lower alkylthio, thiocarbamoyl, thioureido, N-lower alkyl-thioureido, N-phenyl-thioureido, guanidino, N-lower alkyl-guanidino, carboxyl, lower alkoxycarbonyl, phenyloxycarbonyl, benzyloxycarbonyl, hydroxylaminocarbonyl, carbamoyl, amidino, cyano, hydroxyl, lower alkoxy, phenyloxy, aminocarbonyl-oxy, oxo, aminosulfonyl, lower alkylsulfonyl-amino, glycyllamino, alanyl-amino, phenylalanyl-amino, prolyl-amino, valyl-amino, leucyl-amino, isoleucyl-amino, seryl-amino, threonyl-amino, cysteinyll-amino, methionyl-amino, tyrosyl-amino, tryptophanyl-amino, arginyl-amino, histidyl-amino, lysyl-amino, glutamyl-amino, glutaminyll-amino, asparagyl-amino, asparaginyll-amino and phenylglycyl-amino; and

R₅, independently of R₄, is as defined above for R₄, with the exception of hydrogen, or

- C9 b) R₄ and R₅ together are 1,2-ethylene, propane-1,3-diyl, butane-1,4-diyl, pentane-1,5-diyl, 3-(3-amino-propionyl)-3-aza-pentane-1,5-diyl, 2-amino-butane-1,4-diyl, 1-aminomethyl-butane-1,4-diyl, 1-hydroxymethyl-butane-1,4-diyl, 3-hydroxy-pentane-1,5-diyl, 1-hydroxy-hexane-1,5-diyl, 3-(2-amino-ethyl)-pentane-1,5-diyl, 3-aza-pentane-1,5-diyl (-CH₂-CH₂-NH-CH₂-CH₂-), 3-aza-2,4-dimethyl-pentane-1,5-diyl (-CH₂-CH[CH₃]-NH-CH[CH₃]-CH₂-), 3-amino-3-aza-pentane-1,5-diyl (-CH₂-CH₂-N[NH₂]-CH₂-CH₂-), 1-aza-pentane-1,5-diyl, 1-aza-1-toluylaminocarbonyl-pentane-1,5-diyl, 1-aza-1-(methylamino-thiocarbonyl)-pentane-1,5-diyl, 1-aza-1-(tert-butylamino-carbonyl)-pentane-1,5-diyl, 1-aza-1-(cyclohexylamino-carbonyl)-pentane-1,5-diyl, 3-aza-1-hydroxy-heptane-3,7-diyl, 3-aza-1-cyano-heptane-3,7-diyl, 1-amino-3-aza-heptane-3,7-diyl, 3-(2-amino-ethyl)-3-aza-pentane-1,5-diyl (-CH₂-CH₂-N[-CH₂-CH₂-NH₂]-CH₂-CH₂-), 1-carbamoyl-butane-1,4-diyl, 2-formylamino-pentane-1,4-diyl, 2-aza-butadiene-1,4-diyl (-CH=CH-N=CH-), 2-aza-3-hydroxymethyl-butadiene-1,4-diyl (-CH=C[CH₂OH]-N=CH-) or a radical of the formula



in which the two terminal bonds of the alkylene chain are free valencies, or a salt thereof.

24. (newly added) A pharmaceutical composition for treatment of tumors in a human which comprises an antitumorally effective amount of a compound according to claim 23, or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable carrier.